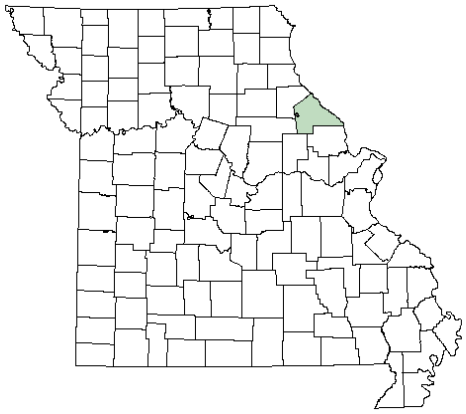
Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Vandalia Reservoir

Waterbody Segment at a Glance:

County: Pike
Nearby Cities: Vandalia
Area of impairment: 37 acres
Pollutant: Atrazine
Source: Corn, Sorghum production



State map showing location of watershed

TMDL Priority Ranking: Medium

Description of the Problem

Beneficial Uses of Vandalia Lake

- Livestock and Wildlife watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption
- Boating and Canoeing
- Drinking Water Supply

Use that is impaired

- Drinking Water Supply

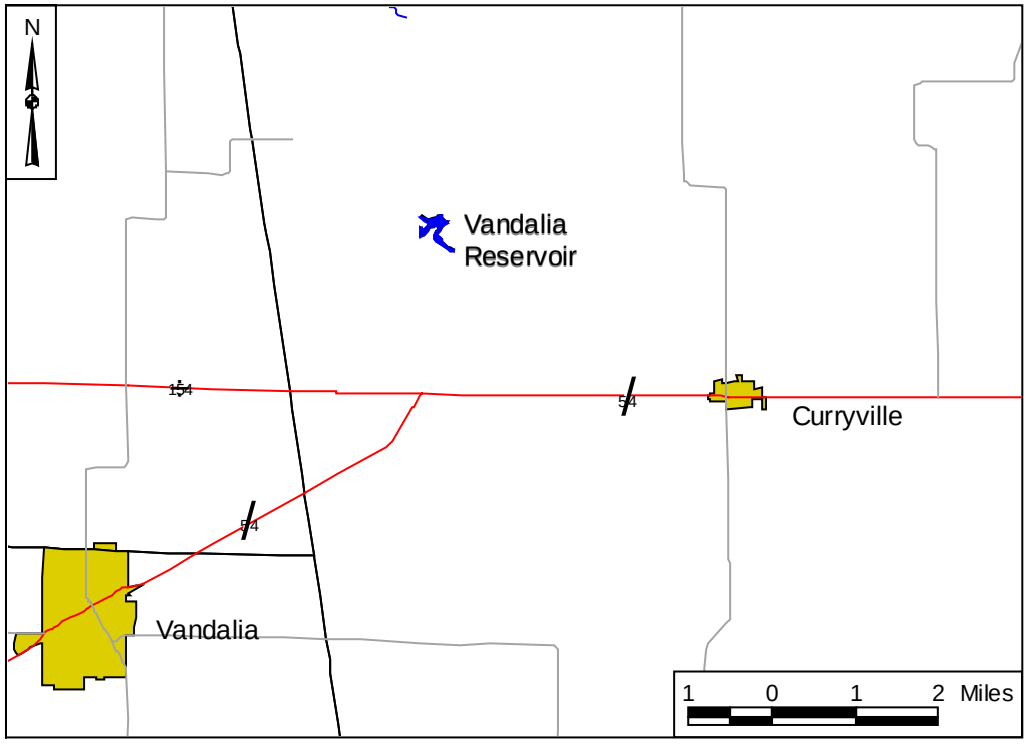
Standards that apply

- The impairment of this lake is based on exceedence of the specific criterion of 3 micrograms per liter (µg/L or parts per billion) atrazine, as an average of the period of record, contained in Missouri's Water Quality Standards. 10 CSR 20-7.031 Table A.

Vandalia Lake is located in Pike County and was created by damming a tributary of South Spencer Creek. The lake's drainage area comprises 3,666 acres. Vandalia Lake is a drinking water source for the town of Vandalia. Vandalia Lake was put on the 1998 303(d) list for atrazine contamination. Atrazine is a widely used herbicide for control of broadleaf weeds. It is the most heavily used herbicide on corn and grain sorghum in Missouri. Since 1993, its uses have been greatly restricted. Atrazine is considered a possible human carcinogen, so the state standard is set at the very low level of three micrograms per liter (µg/L) or parts per billion. In the late 1990s, the city faced an atrazine problem in the lake. The community, farmers, the University of Missouri Extension Service, and state agencies created an atrazine reduction plan.

Farmers changed some of their management practices. This reduction plan resulted in a change in raw-water atrazine levels from 85 parts per billion to 6 parts per billion, which the Vandalia water plant can handle through filtration without significant additional cost.[1] Levels have been decreasing, but the long-term average atrazine level in the lake, 5.14 µg/L, is still above the allowable state standard. The Department of Natural Resources will continue to monitor herbicide levels in the lake. A map and tables summarizing the data may be found below.

Map of Vandalia Reservoir, Pike County



Yearly Atrazine Levels in Vandalia Reservoir, 1996-1999 (µg/L)

Year (months)	Average	Range
1996 (11)	7	7
1997 (1-11)	10.04	0.5-49.2
1998 (1-12)	2.89	0.1-5.8
1999 (1-12)	2.3	0.2-5.1

Source: Novartis Inc.

[1] Missouri Ruralist, June 2001, *On the water front*, page 13.

Monthly Atrazine Levels in Vandalia Reservoir, 1996-1999
(µg/L)

Month (years)	Average	Range
January (1997-1999)	4.33	1.7-5.8
February (1997-1999)	1.8	0.4-2.6
March (1997-1999)	0.33	0.2-0.5
April (1997-1999)	0.47	0.2-0.6
May (1997-1999)	0.7	0.1-1.4
June (1997-1999)	17.87	1.2-49.2
July (1997-1999)	6.54	4.3-10.8
August (1997-1999)	6.3	5-8.8
September (1997-1999)	6.43	3.6-11
October (1997-1999)	6.37	2.4-12.5
November (1996-1999)	5.25	2.4-8.5
December (1998-1999)	2.65	2.3-3

Source: Novartis Inc.

Atrazine in Vandalia Reservoir, 1997
(µg/L)

January	3.88
March	0.42
April	0.4
May	0.59
June	30.9
July	22.92

Source: Monsanto Inc.

Atrazine in Vandalia Reservoir, 1999-2000
(µg/L)

December, 1999	2.74
March, 2000	1.26
June, 2000	1.48
September, 2000	1.45

Source: Missouri Dept of Natural Resources

For more information call or write:
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